Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Eye care: percentage of patients aged 18 years and older with a diagnosis of uncomplicated cataract who had cataract surgery and no significant ocular conditions impacting the visual outcome of surgery and had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following the cataract surgery.

Source(s)

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Outcome

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients aged 18 years and older with a diagnosis of uncomplicated cataract who had cataract surgery and no significant ocular conditions impacting the visual outcome of surgery and had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following the cataract surgery.

Rationale

The only reason to perform cataract surgery (other than for a limited set of medical indications) is to improve a patient's vision and associated functioning. The use of a 20/40 visual acuity threshold is based on several considerations. First, it is the level for unrestricted operation of a motor vehicle in the United States (U.S). Second, it has been consistently used by the U.S. Food and Drug Administration (FDA) in its

assessment for approval of intraocular lens (IOL) and other vision devices. Third, it is the literature standard to denote success in cataract surgery. Fourth, work by West et al. (1997) in the Salisbury Eye Study, suggests that 20/40 is a useful threshold for 50th percentile functioning for several vision-related tasks.

Most patients achieve excellent visual acuity after cataract surgery (20/40 or better). This outcome is achieved consistently through careful attention through the accurate measurement of axial length and corneal power and the appropriate selection of an IOL power calculation formula. As such, it reflects the care and diligence with which the surgery is assessed, planned and executed. Failure to achieve this after surgery in eyes without comorbid ocular conditions that would impact the success of the surgery would reflect care that should be assessed for opportunities for improvement.

The exclusion of patients with other ocular and systemic conditions known to increase the risk of an adverse outcome reflects the findings of the two published prediction rule papers for cataract surgery outcomes, by Mangione et al. (1995) and Steinberg et al. (1994). In both papers, the presence of comorbid glaucoma and macular degeneration negatively impacted the likelihood of successful outcomes of surgery. Further, exclusion of eyes with ocular conditions that could impact the success of the surgery would NOT eliminate the large majority of eyes undergoing surgery while also minimizing the potential adverse selection that might otherwise occur relative to those patients with the most complex situations who might benefit the most from having surgery to maximize their remaining vision.

The following clinical recommendation statements are quoted verbatim from the referenced clinical guidelines and represent the evidence base for the measure:

This is an outcome measure. As such, there are no statements in the guideline specific to this measurement topic.

Evidence for Rationale

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Mangione CM, Orav EJ, Lawrence MG, Phillips RS, Seddon JM, Goldman L. Prediction of visual function after cataract surgery. A prospectively validated model. Arch Ophthalmol. 1995 Oct;113(10):1305-11. PubMed

Steinberg EP, Tielsch JM, Schein OD, Javitt JC, Sharkey P, Cassard SD, Legro MW, Diener-West M, Bass EB, Damiano AM. National study of cataract surgery outcomes. Variation in 4-month postoperative outcomes as reflected in multiple outcome measures. Ophthalmology. 1994 Jun;101(6):1131-40; discussion 1140-1. PubMed

West SK, Munoz B, Rubin GS, Schein OD, Bandeen-Roche K, Zeger S, German S, Fried LP. Function and visual impairment in a population-based study of older adults. The SEE project. Salisbury Eye Evaluation. Invest Ophthalmol Vis Sci. 1997 Jan;38(1):72-82. PubMed

Primary Health Components

Cataract surgery; best-corrected visual acuity of 20/40

Denominator Description

All patients aged 18 years and older who had cataract surgery (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Patients who had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following cataract surgery

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Opportunity for Improvement

This is an outcome of surgery indicator of direct relevance to patients and referring providers. The available evidence suggests that cataract surgery achieves this in between 86% and 98% of surgeries in eyes without comorbid ocular conditions. While small, the volume of cataract surgery in the United States (U.S.) of over 2.8 million surgeries suggests that the impact could affect more than 100,000 patients per year. Because of the exclusion of comorbid ocular conditions, one would expect performance on this indicator to be as high as possible, with significantly lower rates suggestive of opportunities for improvement.

Cataract surgery successfully restores vision in the majority of people who have the procedure. The ASCRS National Cataract Database reported that at 3 months postoperatively, 85.5% of all patients had a 20/40 or better best-corrected visual acuity, 57.2% of patients had 20/25 or better postoperative best-corrected visual acuity, and 74.6% of patients were within +/- 1.0 D of target spherical equivalent. Based on 5,788 responses, the mean visual function index score at 3 months postoperatively was 70.3% compared with 55.0% preoperatively (American Academy of Ophthalmology [AAO], 2011).

Additionally, data from a UK multi-center Cataract National Dataset found a postoperative visual acuity of 6/12 (20/40) or better was achieved for 94.7% of eyes with no co-pathologies and in 79.9% of eyes with one or more copathologies (Jaycock et al., 2009).

A rate of 85.5% to 94.7% of patients achieving a 20/40 or better visual acuity in the context of approximately 3 million cataract surgeries in the U.S. annually would mean that between 160,000 to 435,000 individuals would not achieve a 20/40 or better visual acuity which suggests an opportunity for improvement.

Evidence for Additional Information Supporting Need for the Measure

American Academy of Ophthalmology Cataract and Anterior Segment Panel. Cataract in the adult eye. San Francisco (CA): American Academy of Ophthalmology (AAO); 2011. 89 p. [855 references]

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

Jaycock P, Johnston RL, Taylor H, Adams M, Tole DM, Galloway P, Canning C, Sparrow JM, UK EPR user group. The Cataract National Dataset electronic multi-centre audit of 55,567 operations: updating

benchmark standards of care in the United Kingdom and internationally. Eye (Lond). 2009 Jan;23(1):38-49. PubMed

Extent of Measure Testing

The American Medical Association (AMA)-convened Physician Consortium for Performance Improvement (PCPI) collaborated on several measure testing projects in 2012 and 2015 to ensure the Cataracts – Complications within 30 Days Following Cataracts Surgery measure and Cataracts – 20/40 or Better Visual Acuity within 90 Days Following Cataracts Surgery measures are reliable and evaluated for accuracy of the measure numerator, denominator and exception case identification. The testing projects were conducted utilizing electronic health record data and registry data. Parallel forms reliability and signal-to-noise reliability were tested. One site participated in the parallel forms testing of the measures. Site A was a physician-owned multi-location suburban practice in a large Midwestern city with four physicians. Signal-to-noise reliability was assessed using 2013 data acquired from the Centers for Medicare & Medicaid Services Physician Quality Reporting System Group Practice Reporting Option (GPRO) database. An analysis of the measure exclusions was conducted using 2013 Medicare 5% Beneficiary claims data.

Cataracts – 20/40 or Better Visual Acuity within 90 Days Following Cataracts Surgery

Parallel Forms Reliability Testing (Site A)

There were 149 observations from one site used for the denominator analysis. The kappa statistic value was found to be non-calculable resulting from the inability to divide by zero in the statistic formula when only one response was used.

Of the 149 observations that were initially selected, 149 observations met the criteria for inclusion in the numerator analysis. The kappa statistic value of 0.85 demonstrates almost perfect agreement between the automated report and reviewer.

Reliability: N, % Agreement, Kappa (95% Confidence Interval)
Denominator: 149, 100.0%, Non-Calculable* (Non-Calculable, Non-Calculable)*
Numerator: 149, 92.6%, 0.85 (0.76, 0.93)

*Cannot calculate kappa statistics when only one response (Yes/Yes) was used, as this causes a divide-by-zero error in the statistic formula.

Signal-to-Noise Reliability Testing

For this measure, the reliability at the minimum level of quality reporting events (10) was 0.47. The average number of quality reporting events for physicians included is 55.3. The reliability at the average number of quality reporting events was 0.83.

This measure has poor reliability when evaluated at the minimum level of quality reporting events and high reliability at the average number of quality events.

Exclusions Analysis

Medicare 5% Beneficiary claims data sample, there were 46,715 unique individuals who had a cataract procedure in the first nine months of 2013 with a total of 70,773 procedures. Using the criteria for the measure, 17,735 (25.1%) procedures had a cataract measure exclusion associated with the procedure.

Evidence for Extent of Measure Testing

American Medical Association-convened Physician Consortium for Performance ImprovementÂ® (PCPIÂ®), American Academy of Ophthalmology. Eye care I and II performance measurement sets. Chicago (IL): American Medical Association (AMA); 2015 Aug. 55 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Ambulatory Procedure/Imaging Center

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Individual Clinicians or Public Health Professionals

Statement of Acceptable Minimum Sample Size

Does not apply to this measure

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Patient/Individual (Consumer) Characteristic

Therapeutic Intervention

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
All patients aged 18 years and older who had cataract surgery

Note: Refer to the original measure documentation for administrative codes.

Exclusions
Patients with significant ocular conditions impacting the visual outcome of surgery

Exceptions
None

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Patients who had best-corrected visual acuity of 20/40 or better (distance or near) achieved within 90 days following cataract surgery

Note: Refer to the original measure documentation for administrative codes.

Exclusions
Unspecified

Numerator Search Strategy

Fixed time period or point in time

Data Source

Electronic health/medical record

Registry data

Type of Health State

Clinically Diagnosed Condition

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Measure #4: cataracts: 20/40 or better visual acuity within 90 days following cataract surgery.

Measure Collection Name

AMA/PCPI Eye Care I and II Performance Measurement Set

Submitter

American Medical Association - Medical Specialty Society

Developer

American Academy of Ophthalmology - Medical Specialty Society

Physician Consortium for Performance ImprovementÂ® - Clinical Specialty Collaboration

Funding Source(s)

Unspecified

Composition of the Group that Developed the Measure

Eye Care II Measure Development Work Group*

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*The composition and affiliations of the work group members are listed as originally convened in 2006 and are not up to date.

Financial Disclosures/Other Potential Conflicts of Interest

Conflicts, if any, are disclosed in accordance with the Physician Consortium for Performance Improvement® conflict of interest policy.

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2015 Nov 4

Measure Initiative(s)

Physician Quality Reporting System

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2015 Aug

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates a previous version: American Academy of Ophthalmology, Physician Consortium for Performance Improvement®, National Committee for Quality Assurance. Eye care physician performance measurement set. Chicago (IL): American Medical Association (AMA); 2010 Sep. 35 p.

Measure Availability

Source available from the American Medical Association (AMA)-convened Physician Consortium for Performance Improvement® Web site .

For more information, contact AMA at 330 N. Wabash Avenue Suite 39300, Chicago, Ill. 60611; Phone: 312-800-621-8335; Fax: 312-464-5706; E-mail: cqi@ama-assn.org.

NQMC Status

This NQMC summary was completed by ECRI Institute on February 13, 2008. The information was verified by the measure developer on April 22, 2008.

This NQMC summary was retrofitted into the new template on June 3, 2011.

This NQMC summary was edited by ECRI Institute on April 27, 2012.

This NQMC summary was updated by ECRI Institute on December 3, 2015. The information was verified by the measure developer on January 7, 2016.

Copyright Statement

Production

Source(s)

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